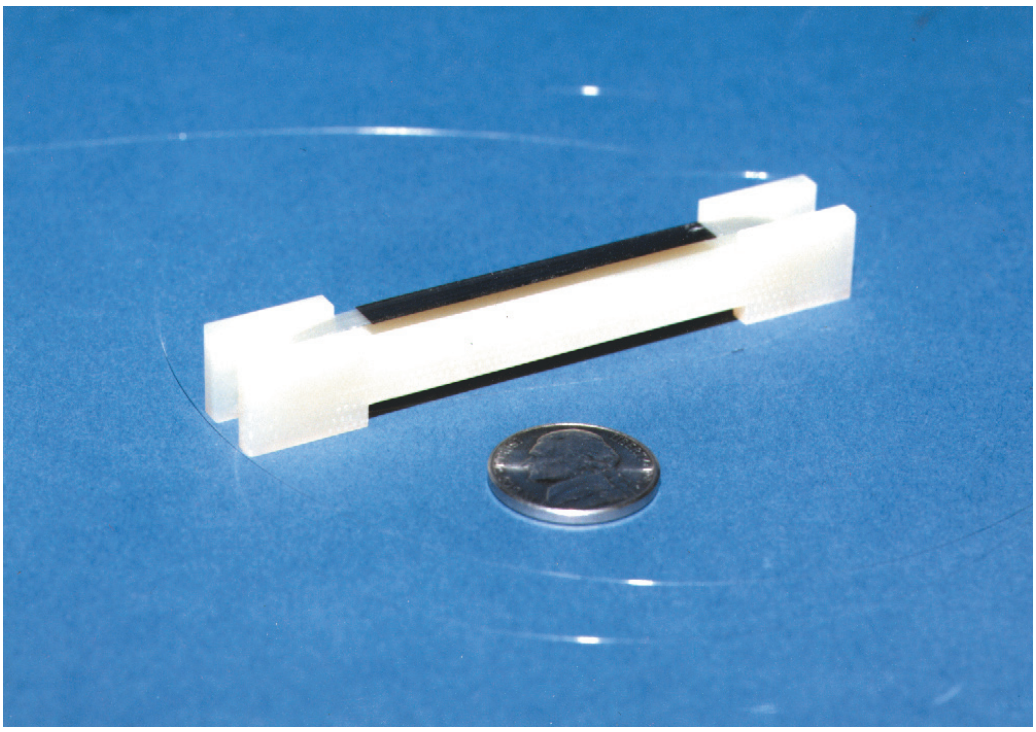
Fiber-Optic Magnetic Field Sensors



DESCRIPTION:

The Naval Research Laboratory has developed a family of fiber-optic sensors for measuring magnetic fields using optical fiber interferometer technology and a material property known as magnetostriction. The sensors can detect magnetic signals over a wide range of frequencies and amplitudes. The sensors are robust, manufacturable, and can be incorporated with other fiber-optic sensors to form multiple sensor arrays. Systems incorporating this technology have been operated in field environments.

ADVANTAGES/FEATURES:

- Wide range of measurement frequencies: dc to >1 GHz
- Large dynamic range: 1– $<10^{-8}$ Gauss
- Easily multiplexed or configured into sensor arrays
- Compatible with other fiber-optic sensors and fiber-optic telemetry systems
- Licensable under the following US patents: 4,600,885; 4,653,915; 4,881,813; 4,889,986; 5,243,403; 5,305,075; 5,396,166; 5,491,335; 5,986,784; 6,081,633; and 6,285,806 B1

APPLICATIONS:

- All-weather detection and tracking of vehicles
- Vehicle identification
- Monitoring ambient magnetic conditions, e.g., for public safety or industrial hygiene purposes
- Harbor, airport runway, and highway traffic control

CONTACT:

Licensing information:
Jane F. Kuhl • Technology Transfer Office • (202) 767-3083 • kuhl@utopia.nrl.navy.mil
Technical information:
Dr. Anthony Dandridge • Optical Sciences Division • (202) 767-9340 • adandridge@ccf.nrl.navy.mil
Clay Kirkendall • Optical Sciences Division • (202) 767-1316 • kirkendall@nrl.navy.mil